

**CLAIMS**

1. A method of controlling an optical signal having a first wavelength, comprising:  
passing the optical signal through a device, the device substantially transparent to  
the first wavelength; and  
5 selectively illuminating the device with an optical signal at a second wavelength,  
illumination of the device by the second wavelength causing alteration of optical  
properties of the device relative to the first wavelength.
2. The method of claim 1, wherein the device is a Mach-Zender modulator.
- 10 3. The method of claim 1, wherein the device is a filter.
4. The method of claim 3, wherein the filter comprises:  
a film having an index of refraction that varied in response to the second  
wavelength.
5. The method of claim 3, wherein the filter comprises:  
15 a diffraction grating optically coupled to the side-polished fiber.
6. The method of claim 5, wherein the filter further comprises:  
a side-polished fiber.
7. An optically controlled optical filter, comprising:  
a semiconductor film whose transmission of a first optical wavelength varies with  
20 illumination at a second optical wavelength.
8. The filter of claim 7, wherein the semiconductor film has a refractive index at the  
first optical wavelength that varies with illumination as the second optical wavelength.
9. The filter of claim 7, further comprising:  
a diffraction grating incorporated into the semiconductor film; and  
25 a side-polished fiber coupled to the diffraction grating.